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Management control systems, business strategy and performance: A comparative analysis of family and non-family businesses in a transition economy in sub-Saharan Africa☆

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ABSTRACT

This article compared the relationships among management control systems (MCS), business strategy and firm performance in family businesses (FBs) and non-family businesses (NFBs) in the context of a transition economy in sub-Saharan Africa that has not been previously studied – Ghana. The findings indicated that the influence of MCS on business strategy is contingent on whether the firm is a FB or NFB. The influence of (i) DCS on the cost leadership strategy is stronger for NFBs than FBs; (ii) ICS on the differentiation strategy is stronger for FBs than NFBs; and (iii) the dynamic tension created by the joint use of DCS and ICS on both the cost leadership and differentiation strategies is stronger for FBs than NFBs. Moreover, business strategy mediates the MCS-performance relationships; however, both the indirect and total impacts of MCS on performance are stronger for FBs than NFBs.

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1. Introduction

In the contemporary competitive, complex and changing global business environment, firms are being challenged to adopt business models that enable them to address the strategic uncertainties and risks they face in their business environments. Management accounting researchers argue that one of the ways firms can continually rejuvenate themselves to survive and succeed in these complex and uncertain environments is to understand the role of management control systems (MCS) in creating competitive advantages (Simons, 2000; Widener, 2007). According to Simons (2000, p. 4) MCS are "the formal, information-based routines and procedures used by managers to maintain or alter patterns in organizational activities." MCS includes management accounting systems, budgetary practices, performance measurement systems, project management systems, planning systems, and reporting systems (Simons, 1990). The purpose of MCS is to provide information that is useful for managerial decision-making, planning, monitoring and evaluation of organisational activities to alter employee behaviour (Merchant & Otley, 2007). MCS also provide strategic direction to the innovative efforts of firms, and the efficiencies they produce can free up resources for innovative activities (Marginson, 2002). Strategy and accounting researchers, therefore, contend that MCS are critical in helping top managers formulate strategies, specify the operational actions required to implement these strategies, clarify mutual expectations, identify priorities for operational improvements, and set targets that may influence current and subsequent performance (Simons, 1994).

The management accounting literature is replete with studies that investigate the role of MCS in strategy formulation and implementation (Bruining, Bonnet, & Wright, 2004; Henri, 2006; Kober, Ng, & Paul, 2007; Langfield-Smith, 1997; Simons, 1990). However, none of these studies have examined how MCS are used in family businesses (FBs), which constitute approximately 90% of all businesses worldwide, and how the use of MCS influences the implementation of business strategy and performance in FBs. Previous studies on MCS in FBs focused on establishing the existence of Ouchi's (1979) bureaucratic control versus clan control framework (Moores & Mula, 2000). Moreover, the FB literature is devoid of studies examining how FBs use formal management controls, incentives, and information systems to formulate and implement strategy and how these methods subsequently affect performance. FBs exhibit some unique characteristics that distinguish them from nonfamily businesses (NFBs), with the primary uniqueness stemming from the integration of family life and business activities; their desire to preserve the family's socioemotional wealth; and the pursuit of both financial and nonfinancial goals (Gomez-Mejia, Cruz, Berrone, & De Castro, 2011; Habbershon & Williams, 1999;

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Hoffman, Hoelscher, & Sorensen, 2006; Sirmon & Hitt, 2003; Tagiuri & Davis, 1996). These differences between FBs and NFBs have implications for the use of MCS to support the implementation of business strategy and how they influence performance.

The objective of this study is to examine the extent to which FBs use MCS and how their use of MCS enables them to gain competitive advantages by affecting the implementation of their business strategy and performance relative to NFBs in a transition economy in sub-Saharan Africa – Ghana. The study focuses on sub-Saharan Africa in general and Ghana in particular because almost all small, micro and medium-sized enterprises (SMMEs) in sub-Saharan Africa are FBs, although there is a lack of official statistics reporting the percentage of FBs in sub-Saharan Africa. Specifically, estimates suggest that approximately 90% of all business in Ghana are SMMEs and that these SMMEs employ approximately 70% of the country's labour force (Benzing & Chu, 2009; Government of Ghana, 2003; World Bank, 2006). Moreover, despite the large number of studies examining the MCS-strategy relationship, none focus on sub-Saharan Africa. Although Ghana is, economically, a relatively small country in sub-Saharan Africa, its economy is estimated to have grown by approximately 14.4% in 2011 due to relatively sound management, a competitive business environment, and sustained reductions in poverty levels (Central Intelligence Agency (CIA), 2012). Thus, in sub-Saharan Africa, Ghana is seen as a model country and a budding economic success story (Faruq & Yi, 2010). Ghana, therefore, provides an interesting setting for examining and comparing the MCS-strategy–performance relationships in FBs and NFBs in sub-Saharan Africa.

The study relies on Simons' (1995, 2000) levers of control framework, which posits that there are tensions between an organisation's need for creative innovation and the need for predictability to achieve predetermined goals and objectives, which need to be managed. The article examines how managing the tensions created through the use of MCS influences the implementation of business strategy. Simons (1995, 2000) classifies formal MCS into four categories – belief systems, boundary systems, diagnostic control systems (DCS) and interactive control systems (ICS). The belief and boundary systems are used to frame the strategic domain, while DCS and ICS are the feedback and performance measurement systems (PMS) used to elaborate and implement strategy (Bisbe & Otley, 2004). This study will focus on PMS and seek answers to the following questions in FBs and NFBs: (1) To what extent do FBs and NFBs use MCS feedback and performance measurement systems (DCS, ICS and the *Dynamic Tension* created as a result of the joint use of DCS and ICS) in their business operations and how does MCS contribute to the implementation of business strategy? (2) How do the effects of PMS of MCS on business strategy implementation differ between FBs and NFBs? (3) How does the mediating role of business strategy implementation in the relationship between the PMS of MCS and firm performance differ between FBs and NFBs? The relationships examined in this study are summarised in Fig. 1.

Using data from 50 FBs and 50 NFBs from Ghana, the major findings of the study reveal that while the effect of DCS on supporting the implementation of the cost leadership strategy is stronger for NFBs than FBs, the influence of ICS on supporting the implementation of the differentiation strategy is stronger for FBs than NFBs. The influence of the *Dynamic Tension* created by the joint use of DCS and ICS in supporting the implementation of the cost leadership and differentiation strategies is stronger for FBs than NFBs. The study further showed that the indirect effect of MCS (DCS, ICS, and *Dynamic Tension*) through business strategy (cost leadership and differentiation) on performance is stronger for FBs than NFBs. The findings also suggested a contingency approach in the use of MCS to implement business strategy. While DCS supports the implementation of cost- or efficiency-based business strategies, ICS supports the execution of market-based or differentiation strategies.

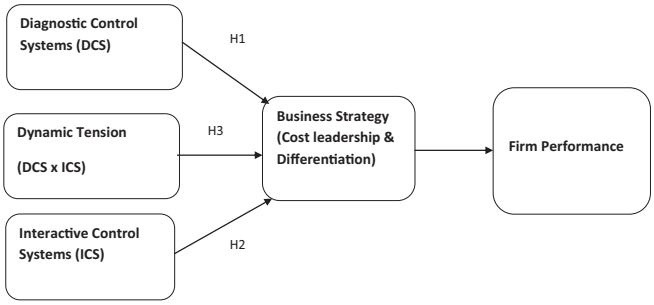

Fig. 1. Hypothesised research model. * H4 compares the indirect effects of Management Control Systems (DCS, ICS and DCS × ICS) on Firm Performance through Business Strategy (Cost Leadership & Differentiation) between FBs and NFBs.

The findings from this study contribute to the family business literature in several ways. First, this study is one of the few attempts to comprehensively examine the role of Simons' (1995, 2000) PMS on the implementation of business strategy and performance in the FB literature. Although, Moores and Mula (2000) studied the management and control systems of family businesses in Australia, they focused on ascertaining the existence of Ouchi's (1979) classification of bureaucratic and clan controls in FBs. Moreover, Moores and Mula's (2000) study failed to link the controls to strategy or performance. Second, this is the first study to examine formal MCS-strategy–performance issues in FBs in a transition economy in a sub-Saharan African environment, which is characterised by institutional voids (Khanna & Palepu, 1997), high levels of market imperfections but also by increased competition, the implementation of economic reforms and deregulation of state-owned enterprises, and collectivistic cultural orientations. Third, the findings provide support for the view that the PMS proposed by Simons (1995, 2000) could be used by both NFBs and FBs as tools to implement business strategies; this in turn enables FBs to develop a competitive advantage vis-à-vis NFBs. By leveraging their unique characteristics of flexibility, maternalism, generosity, long-lasting relationships and close and emotional ties to employees to create a dedicated, motivated and committed workforce, FBs are able to use MCS to develop greater competitive advantages than NFBs. Fourth, this study contributes to the limited body of empirical research on the effect of Simons' (1995, 2000) concept of *Dynamic Tension* on strategy and performance. The findings corroborate the view that DCS and ICS work simultaneously and jointly to generate *Dynamic Tension* through their balanced use and demonstrate how the notions of competition and complementarity could support the implementation of intended strategy while simultaneously facilitating the emergence of new strategies (Henri, 2006; Mundy, 2010). This finding was found to be true for FBs but not for NFBs in Ghana. Fifth, the finding indicates that there is a contingency perspective in the use of control systems to implement business strategy (Chenhall, 2003). While the diagnostic use of PMS supports the implementation of an efficiency-based strategy, a PMS used interactively supports the implementation of a market-based or differentiation-based strategy. However, for FBs, a MCS that exploits the *Dynamic Tension* from the joint use of DCS and ICS plays a significant role in supporting the implementation of both efficiency-based and market-based strategies to enhance performance.

The remainder of the article is organised as follows. Sections 2 and 3 present the theoretical background and hypotheses. Section 4 describes the methodology and research design. Section 5 discusses the results, while Sections 6 and 7 present the discussion and conclusion.

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2. Theoretical background

2.1. Family businesses

Family business researchers highlight several unique characteristics of family businesses that allow them to strategically organise their business activities efficiently and effectively. Hoffman et al. (2006) argue that the characteristic that distinguishes FBs from NFBs is the effect of the family relationships on the business. Gomez-Mejia et al. (2011) argue that an additional feature that distinguishes FBs from NFBs is their desire to preserve the family's socioemotional wealth and the pursuit of nonfinancial outcomes. These relationships and features are revealed by the following characteristics. First, in FBs there is not only a paternalistic relationship between the owners/managers and employees (Bertrand & Schoar, 2006), but there is also a maternalistic relationship between the family owners and the employees because of the former's nurturing attitude. Second, FBs have cohesive clan cultures in which employees are hired for the long-run and treated generously (Miller & Le Breton-Miller, 2005). Third, FBs have unique capabilities that propagate trust, inspiration, motivation, and commitment among the employees. Fourth, FBs have a strong desire to develop customer relationships and demonstrate flexibility in their business activities and decision-making processes (Tokarczyk, Hansen, Green, & Down, 2007). Moreover, FBs are apt to develop social relationships and connections and are also known to have the integrity and commitment to maintain those relationships (Miller, Lee, Chang, & Le Breton-Miller, 2009). Fifth, the reputation of FBs enables them to experience both a higher level of trustworthiness and lower overall transaction costs (Tagiuri & Davis, 1996).

Finally, families may control their businesses by giving priority to family members in top management and other sensitive positions and are also selective in their recruitment procedures (Bertrand & Schoar, 2006). This allows FBs to have lower recruitment and human resource costs and a tendency to be parsimonious in the use of their resources (Carney, 2005), thus making them more efficient than other labour-intensive businesses (Levring & Moskowitz, 1993). However, this study recognises that FBs are not monolithic with respect to family involvement in the business, which is why several researchers have distinguished different family businesses by using terms such as "family owned", "family managed", "family owned and managed" and "family controlled" (Gomez-Mejia et al., 2011; Shankar & Astrachan, 1996). Nevertheless, the characteristics enumerated above generally apply to all family businesses and could be used to distinguish FBs from NFBs, and these characteristics allow them to create a unique and flexible work environment that inspires employees to be motivated, committed and loyal to the business. They also allow employees to focus on the well-being of customers, thereby enabling the business to implement an efficient and effective business strategy.

2.2. Management control systems

Although several definitions of MCS appear in the management accounting literature (e.g., Anthony & Govindarajan, 1995; Otley & Berry, 1994), this study uses Simons' (1995, 2000) definition presented in the levers of control framework. Simons (2000, p. 4) defines MCS as "the formal, information-based routines and procedures used by managers to maintain or alter patterns in organizational activities." Simons classifies formal MCS into four categories: belief systems, boundary systems, DCS and ICS. At the centre of the four levers of control is the firm's business strategy, which focuses on how the firm competes and positions itself against rivals in its market (or industry) environment. Simons (1995) argues that the viable the implementation of a firm's business strategy crucially depends on understanding the role of the four levers, the purpose of which is to manage the inherent tensions between predictably achieving goals and creative innovation in an organisation. *Belief systems* are "the explicit set of organizational definitions that senior managers communicate formally and reinforce systematically to provide basic values, purpose and direction for the organization" (Simons, 2000, p. 276). Belief systems are used to delineate the core values of the firm, stimulate and direct the search for new opportunities, and provide a purpose and direction for the firm. A *boundary system* "delineates the acceptable domain of strategic activity for organizational participants" (Simons, 1995, p. 39). Boundary systems, therefore, are formally stated limits and rules that communicate risks to be avoided. Thus belief and boundary systems are used to frame the strategic domain of a firm's business activities (Bisbe & Otley, 2004).

The other two levers of control, DCS and ICS, which represent PMS, are used to control the implementation of strategy within the acceptable domain of the firm's business activities. DCS are formal systems that are used to focus the attention of an organisation's employees and the organisation as a whole on achieving goals (Simons, 2000). They are used on an exception basis to monitor adherence to pre-set standards or goals and reward the achievement of such goals. Thus, DCS facilitate the information processing by providing exception reporting. DCS are therefore focused on assisting organisations to implement intended strategies. DCS do so by providing the motivation and direction necessary to achieve organisational goals through their focus on and correction of deviations from pre-established performance standards. The main characteristics of DCS are: (a) they facilitate the measurement of process outputs; (b) they provide predetermined standards against which actual outcomes can be compared; and (c) they correct deviations from pre-established standards (Van Veen-Dirks & Wijn, 2002).

ICS, however, are formal systems used by top managers to "regularly and personally involve themselves in the decision activities of subordinates" (Simons, 1994, p. 171). ICS give top managers the tools to encourage opportunity-seeking behaviours, experimentation, and learning throughout the organisation that may result in emergent strategies (Simons, 2000). It has, however, been shown that ICS not only result in emergent strategies but also assist in the implementation of intended strategies (Kober et al., 2007). ICS provide opportunities for top managers to enhance their abilities to anticipate and effectively manage strategic uncertainties in their business environments. The main characteristics of ICS, according to Simons (1995, 2000), are as follows: (a) the information generated by the system is an important and recurring agenda item addressed by top management; (b) the information generated by the system demands frequent and regular attention from managers at all levels of the organisation; (c) the data and information generated by the system are interpreted and discussed in face-to-face meetings with superiors, peers and subordinates; and (d) the information generated by the system is used to continually challenge and debate underlying assumptions, data and action plans.

Both DCS and ICS are important in implementing business strategy but play different roles. DCS focus on goal achievement by measuring and monitoring outcomes and correcting deviations from pre-determined measures of performance. DCS, therefore, help managers to translate intended strategies into realised strategies. Conversely, ICS focus attention on strategic uncertainties and new opportunities. ICS encourage opportunity-seeking behaviours, experimentation, and learning to take advantage of new opportunities by encouraging continual dialogue and debate that could lead not only to the development of emergent strategies

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but also to the implementation of intended strategies. Due to the negative and positive forces DCS and ICS represent, when they are used jointly to support the implementation of business strategy, they create *Dynamic Tension* that is used to manage and balance the inherent tensions in an organisation. The inherent tensions include innovation versus control, profitability versus growth, unlimited opportunities in the market place versus scarce amounts of time and attention, and individual goals versus organisational goals (Simons, 2000).

2.3. Business strategy

The strategic management literature provides several typologies of business strategy orientations to describe how a firm could develop sustainable competitive advantages in an industry relative to its competitors (e.g., Miles & Snow, 1978; Miller & Friesen, 1986; Mintzberg, 1988; Porter, 1980, 1985). The common inclination in all of these business strategy typologies is a focus on the relative emphasis a business places on the efficiency or effectiveness of a firm's market position. For instance, Miles and Snow's (1978) defender strategy and Porter's (1980) overall cost leadership strategy describe a firm's relative focus on efficiency to become the lowest cost producer in the industry. Conversely, the prospector strategy (Miles & Snow, 1978) and differentiation strategy (Porter, 1980) describe a firm's relative focus on the search for market opportunities to create and offer unique products and services to customers. This study focuses on Porter's (1980, 1985) generic competitive strategy typology to depict the business strategy orientations of the FBs and NFBs because of its influence and dominance in strategy research (see Campbell-Hunt, 2000).

Porter (1980, 1985) argues that the generic competitive strategies of cost leadership, differentiation, and focus (cost leadership or differentiation in a narrow market segment) represent different strategic orientations available to a firm to compete and achieve sustainable competitive advantages in its industry. Cost leadership and differentiation, therefore, represent two fundamentally different means of achieving sustainable competitive advantages and enhanced performance. A firm that pursues a cost leadership strategy could achieve a sustainable competitive advantage by becoming the lowest cost producer or service provider in its industry. A firm implementing a cost leadership strategy emphasises "aggressive construction of efficient-scale facilities, vigorous pursuit of cost reductions from experience, tight cost and overhead control, avoidance of marginal customer accounts, and cost minimization in areas like R&D, service, sales force, advertising, and so on" (Porter, 1980, p. 35). A firm implementing the differentiation strategy, however, focuses on developing products or services that are unique or that customers perceive to be unique to create a competitive advantage. A firm generates these perceptions through advertising programs, marketing techniques and methods, offering products with greater reliability, durability, features and aesthetics, and superior performance than their competitors (Miller, 1988; Mintzberg, 1988; Porter, 1985). The differentiation strategy is typically bolstered by substantial investments in research and development, marketing, and product and service innovation. Empirically, most previous studies of the competitive strategy–performance relationship using Porter's (1980) typology have supported the existence of a relationship between competitive strategy (cost leadership and differentiation) and performance in both transition and advanced economies (e.g., Acquaah, Adjei, & Mensa-Bonsu, 2008; Aulakh, Kotabe, & Teegen, 2000; Beal & Yasai-Ardekani, 2000; Campbell-Hunt, 2000; Dess & Davis, 1984; Kim, Nam, & Stimpert, 2004; Miller & Dess, 1993; Spanos, Zaralis, & Lioukas, 2004).

3. Hypotheses development

In developing the hypotheses comparing the relationships among MCS (DCS, ICS and *Dynamic Tension*), business strategy and performance, general hypotheses are first introduced to corroborate extant studies on the relationships among MCS, business strategy and performance, as these relationships have not been previously investigated in sub-Saharan Africa. The core hypotheses, which focus on comparing the relationships among MCS, business strategy and performance in FBs and NFBs, are then presented.

3.1. Diagnostic control system and business strategy

Studies in management accounting and strategy have suggested a link between MCS (DCS and ICS) and business strategy (Bruining et al., 2004; Kober et al., 2007; Marginson, 2002; Simons, 1990). DCS are the formal feedback mechanisms used to monitor and reward the achievement of pre-determined organisational outcomes. DCS are used to ensure that the business strategy implemented by a firm is in line with its strategic initiatives and goals. DCS are also used to constrain employee behaviour, and their monitoring function highlights problems and challenges, which motivates employees to achieve organisational goals and thus encourages conservatism in the implementation of intended strategies. While DCS is used to support the implementation of the cost leadership strategy through its focus on tight operational control and managing strategic uncertainty and risks (Simons, 2000), they support a differentiation strategy through their focus on effective resource allocation, clearly defining the goals of the firm, communicating a firm's critical success factors to its employees, and facilitating information processing through exception reporting (Simons, 1995; Widener, 2007). Moreover, DCS promotes the implementation of the differentiation strategy by motivating and encouraging employees to align their behaviours with organisational objectives so that managers are able evaluate operational effectiveness and implement procedures that focus on internal strategic factors that ensure safety, quality, and internal innovation (Simons, 2000; Widener, 2007). Therefore, the following general hypothesis is presented to corroborate extant studies before examining the core hypothesis comparing FBs and NFBs:

Hypothesis 1a. The use of diagnostic control systems will have a positive influence on the implementation of business strategy (cost leadership strategy and differentiation strategy).

While DCS is necessary and would be used by both FBs and NFBs, their influence on the implementation of the cost leadership and differentiation strategies would be different for FBs and NFBs. Although DCS serve to review and monitor outcomes, and correct deviations from preset measures of organisational goals, they are mechanistic systems used to tightly control actions and discourage opportunity-seeking behaviour, which are perceived as deterrents to creativity and innovation (Simons, 1995). Therefore, the tight control of operations through action plans and budgets, detailed financial targets, comparisons of actual outcomes with preset targets, and variance analysis characteristic of DCS is more likely to be associated with a cost leadership strategy than a differentiation strategy in both FBs and NFBs. This is because the cost leadership strategy is characterised by tight cost and overhead control, economies of scale, the use of efficient scale facilities, offering standardised products, and a substantial focus on market share (Porter, 1980). However, FBs characteristics of having both paternalistic (Bertrand & Schoar, 2006) and maternalistic relationships with employees, the existence of cohesive clan cultures in which employees are hired for the long-run

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(Miller & Le Breton-Miller, 2005), and the stability and long tenure of family executives would not only facilitate the use of tight operational controls inherent in DCS to implement the cost leadership strategy, but would also allow the use of a differentiation strategy in a different way because of these firms' focus on preserving the family's socioemotional wealth and interest in both economic and non-economic benefits.

Although the desire to preserve the socioemotional wealth of the family in FBs implies that the family would value control over the business, they would be less likely to place greater emphasis on rigid targets and highly structured communication channels, which are characteristic of DCS. FBs would, however, focus more on clearly defining employee goals and expectations and effectively allocating resources to implement the cost leadership strategy. Similarly, FBs, in contrast to NFBs, are known to expend a significant amount of effort in resolving family conflicts and emotions, which has the potential to distract from market competition and internal strategic factors that ensure the safety, quality, and internal innovation necessary for implementing the differentiation strategy. It has been argued that compared to NFBs, FBs appear to rely on trust and social relationships to a greater extent to motivate employees and reduce costs to achieve organisational goals (Memili, Chrisman, Chua, Chang, & Kellermanns, 2011; Miller et al., 2009). This could be helpful in minimising defects and improving quality, which are hallmarks of a differentiation strategy. However, NFBs would be able to alter employee behaviours through the use of DCS and thus facilitate efficiency when implementing the cost leadership strategy and motivate and encourage employees to align their behaviours with organisational objectives so that managers are able evaluate operational effectiveness to implement a differentiation strategy. Therefore:

Hypothesis 1b. Diagnostic control systems will have a greater effect on the implementation of business strategy for nonfamily businesses than family businesses.

3.2. Interactive control systems and business strategy

ICS enable managers to personally involve themselves in the decision activities of subordinates (Simons, 2000). Simons (2000) argues that ICS are DCS that are used interactively through continuous and frequent management attention. The use of ICS would influence the implementation of a cost leadership strategy through their focus on several types of environmental changes and types of strategic uncertainty such as competitor tactics, market changes, technological changes, and variations in customer switching costs (O'Connor, Vera-Munoz, & Chan, 2011; Widener, 2007). Moreover, ICS support the implementation of a differentiation strategy through their role in determining customer demand, identifying new ideas and stimulating innovation. Henri (2006) has shown that ICS foster the capabilities of market orientation, innovativeness, entrepreneurship and organisational learning that enable the implementation of a differentiation strategy. Thus in the course of supporting the implementation of business strategy, ICS direct the attention of managers to monitoring strategic uncertainties in the firm's business environment. Moreover, ICS also encourage managers to continuously review strategic initiatives, as they use information from the internal and external environments to implement the chosen strategy. Thus the following general hypothesis is presented before examining the core hypothesis comparing FBs and NFBs:

Hypothesis 2a. The use of interactive control systems will have a positive influence on the implementation of business strategy.

However, ICS encourage opportunity-seeking behaviour, experimentation, and stimulate the emergence of new ideas and initiatives. ICS, therefore, focus on continually monitoring customer needs, identifying and developing new ideas, creativity, and innovativeness. These characteristics of ICS are more consistent with the implementation of the differentiation strategy in both FBs and NFBs. The differentiation strategy is characterised by product and service uniqueness generated through brand and customer loyalty and an emphasis on innovativeness and marketing relationships. In fact, Porter (1980) suggested that the differentiation strategy would rely more on control through coordination than rigid pre-set standards or rules to encourage creativity and innovation. Thus, FBs would be more likely to rely on ICS, which is an organic system encouraging the development of new ideas, creativity, opportunity-seeking, and innovativeness, to implement a differentiation strategy than NFBs. FBs' desire to preserve their socioemotional wealth and unique capabilities that propagate trust, motivation, identification with the firm, and commitment among the employees mean that they would be more likely than NFBs to use ICS to implement a differentiation strategy by encouraging creativity, innovativeness, face-to-face conversations about customer needs and preferences, developing enduring and committed relationships with customers. Furthermore, the unique characteristics of FBs would allow them to use ICS to implement the cost leadership strategy by rapidly identifying changes in the external environment, competitor tactics, marketing relationships, technology, and customer switching costs. In fact, FBs reliance on "moral resources", or the accumulation of internal social capital (Sorensen, Goodpaster, Hedberg, & Yu, 2009), allows them to minimise the difference between employee and firm goals and thus creates a strong sense of community. This facilitates the use of ICS in implementing both the differentiation and cost leadership strategies. Venohr and Meyer (2007) conducted a longitudinal study on the long-term progress of Germany's "Hidden Champions" – leading privately held, medium-sized firms identified by Hermann Simon in the mid-1990s – over a decade and found that these firms continue to be successful because family ownership is combined with professional external management to pursue business strategies that focus on both cost leadership (a persistent focus on efficiency and selective offshoring of lower value-added activities to drive down costs) and differentiation (leadership in global niche markets, combining superior quality products with careful attention to customer needs, major resource commitments in R&D, sales and distribution, and improving operational effectiveness), which are conducive to the use of ICS. Moreover, FBs' characteristics of trustworthiness and enduring social relationships (Miller et al., 2009), their strong desire to develop customer loyalty through relationships, and demonstrated flexibility in decision making (Tokarczyk et al., 2007) would allow FBs to use ICS to implement the differentiation strategy to a greater extent than NFBs. Thus the following hypothesis:

Hypothesis 2b. Interactive control systems will have a greater influence on the implementation of business strategy for family businesses than nonfamily businesses.

3.3. Dynamic Tension between diagnostic and interactive control systems and business strategy

Simons (1995) argues that organisations need to employ both DCS and ICS, and the joint use of DCS and ICS serve interdependent and complementary functions and create *Dynamic Tensions*. Whereas DCS are mechanistic controlling systems and focus on the achievement of predictable goals, ICS are organic and enabling systems that emphasise creativity and innovation (Mundy, 2010). It is argued that the joint use of DCS and ICS to create *Dynamic Tension* complements the benefits of each of the control systems by balancing control with innovation and learning (Mundy, 2010;

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Simons, 1995). When jointly used, DCS act as a support structure for the effective use of ICS (Widener, 2007). The *Dynamic Tension* from the joint use of DCS and ICS further ensures that the positive effects of ICS on the development of organisational capabilities and the implementation of business strategy are not only enhanced (Henri, 2006) but also constrain employee behaviour to align it with the organisation's goals, emphasise the boundaries of the organisation's activities, and minimise risk-taking. Furthermore, the joint use of DCS and ICS enhances the benefits of DCS by focusing employees' attention on organisational goals while increasing the flexibility to manage both strategic uncertainty and risk (Widener, 2007) and innovation and creativity (Henri, 2006). According to Simons (2000, p. 305), "the information and learning generated by interactive systems can be embedded in the strategies and goals that are monitored by diagnostic control systems." Chenhall and Morris (1995) show that the organic decision processes characteristic of ICS become more effective when combined with mechanistic controls. Henri (2006) finds that the *Dynamic Tension* created by the combination of DCS and ICS has a positive influence on market orientation, entrepreneurship, innovativeness and organisational learning capabilities, which jointly influence performance. Thus, the *Dynamic Tension* not only supports the implementation of intended strategies through DCS but helps to adjust the strategy that emerges from the use of ICS. Thus the following general hypothesis is presented before examining the core hypothesis comparing FBs and NFBs:

Hypothesis 3a. The use of the dynamic tension created by combining diagnostic control systems and interactive control systems will have a positive effect on the implementation of business strategy.

The *Dynamic Tension* produced by the joint use of DCS and ICS that could be effectively used to manage the inherent organisational tension between innovation and control in the development of capabilities and implementation of business strategy requires a balance to be struck between the two (Mundy, 2010). FBs are argued to be more likely to achieve a balanced use of DCS and ICS to implement their business strategy than NFBs. FBs' desire to preserve socioemotional wealth, in addition to their interest in both economic and non-economic benefits, would motivate them to balance the simultaneous use of DCS and ICS to direct and empower employees to achieve the goals of the organisation. Because of FBs patient capital and emphasis of long-term gains over short-term returns (Arregle, Hitt, Sirmon, & Very, 2007; Harris, Martinez, & Ward, 1994), FB management would purposefully intervene in the activities of employees to create the conditions and environment that allow for the balanced use of DCS and ICS to implement strategy. Moreover, the paternalistic and maternalistic relationships between the family owners and employees of FBs provides them with the advantage of establishing broad constraints within which employees are expected to operate and balancing those constraints with an enabling environment to exploit innovative opportunities and facilitate the development of the capabilities required for the successful implementation of strategy. This leads to the following hypothesis:

Hypothesis 3b. The dynamic tension created by combining diagnostic control systems and interactive control systems will have a greater influence on the implementation of business strategy for family businesses than nonfamily businesses.

3.4. Management control systems, business strategy and performance

Business strategy is considered one of the major determinants of performance (Campbell-Hunt, 2000; Porter, 1980). The cost leadership strategy enables a firm to obtain a strong competitive position and increase performance through operational efficiency. The differentiation strategy, however, enables a firm to achieve superior performance through a strong market position resulting from the brand and customer loyalty created by the uniqueness of the products and services on offer and the ability to charge premium prices. Most empirical studies using data from both advanced industrialised economies and transition or emerging economies have demonstrated that both cost leadership and differentiation strategies affect firm performance (e.g., Acquaah, 2011a; Acquaah & Yasai-Ardekani, 2007; Beal & Yasai-Ardekani, 2000; Campbell-Hunt, 2000; Kim et al., 2004; Miller & Dess, 1993; Spanos et al., 2004; Venohr & Meyer, 2007). Acquaah (2011a) demonstrated that the business strategies of cost leadership and differentiation are positively related to performance (return on assets and return on sales) for FBs. Venohr and Meyer's (2007) study of leading, privately held, medium-sized firms in Germany (called the "Hidden Champions"), which were identified by Hermann Simon in the 1990s, over a 10-year period showed that they continue to be successful by leveraging their family ownership and professional external management to implement business strategies that were based on a combination of differentiation and cost leadership – market leadership in global niches, combining superior quality products with careful attention to customer needs, major resource commitments in R&D, sales and distribution, a persistent focus on efficiency, the selective offshoring of lower value-added activities to drive down costs, and persistent improvements in operational effectiveness.

DCS and ICS have also been found to be positively associated with business strategy (Kober et al., 2007; Marginson, 2002; Simons, 1994). The unique characteristics of FBs have been hypothesised to create the following relationships between MCS and the implementation of business strategy: (1) the relationship between DCS and business strategy implementation would be stronger for NFBs than FBs; (2) the relationship between ICS and business strategy implementation would be stronger for FBs than NFBs; and (3) the relationship between dynamic tension and business strategy implementation would be stronger for FBs than NFBs. As MCS are related to the implementation of business strategy, and the implementation of business strategy is associated with enhanced performance, the use of MCS can be expected to influence the performance of both FBs and NFBs through the implementation of business strategy. Therefore, the use of MCS (DCS, ICS and *Dynamic Tension*) would be expected to have an indirect effect on performance through their influence on business strategy, but the effects on FBs and NFBs would differ. Thus the following hypotheses:

Hypothesis 4a. The indirect effect of diagnostic control systems on performance, mediated by business strategy, will be greater for nonfamily businesses than family businesses.

Hypothesis 4b. The indirect effect of interactive control systems on performance, mediated by business strategy, will be greater for family businesses than nonfamily businesses.

Hypothesis 4c. The indirect effect of the dynamic tension created by combining diagnostic control systems and interactive control systems on performance, mediated by business strategy, will be greater for family businesses than nonfamily businesses.

H1 suggests that DCS would positively influence the implementation of business strategy and the relationship would be stronger for NFBs than FBs. H2 further suggests that ICS would influence the implementation of business strategy, however, the relationship between ICS and the implementation of business

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strategy would be stronger for FBs than NFBs. Similarly, H3 posits that the *Dynamic Tension* created by combining DCS and ICS will have a positive relationship with business strategy, and the impact will be greater for FBs than NFBs, while H4 posits that the MCS will indirectly affect firm performance through business strategy. The theoretical development presented here does not support the hypotheses suggesting a direct relationship between MCS and performance. Previous studies on MCS using Simon's (1995, 2000) levers of control framework for performance measurement systems has not provided a theoretical link between MCS and performance (e.g., Henri, 2006; Widener, 2007) or empirical evidence that MCS influence performance (e.g., Bisbe & Otley, 2004). Most studies have, however, proposed an indirect link between MCS and performance through business strategy and other strategic variables such as innovation, organisational learning, market orientation, entrepreneurship, and organisational capabilities (Bisbe & Otley, 2004; Henri, 2006; Widener, 2007). A direct relationship between MCS and performance was therefore not hypothesised. Nevertheless, the conceptual model allows for the possibility of a direct effect of MCS on performance. This provides the opportunity to examine the overall effect (the combination of direct and indirect effects) of MCS on performance. The study, therefore, examines the overall effects of DCS and ICS on performance, mediated by business strategy, for FBs and NFBs without any formal hypotheses.

4. Methods

4.1. Research setting

The study was conducted using data from Ghana. Ghana is a relatively small sub-Saharan African country located on the West African coast. The U.S. CIA (2012) estimates that in 2011, Ghana had a population of approximately 24.7 million, a Gross Domestic Product (GDP) of US$37.78 billion, a real GDP growth rate of 14.4%, a per capita GDP of US$3100.00, and an inflation rate of 8.7%. Ghana's corporate law and the institutional framework for implementing and enforcing laws and regulations governing the conduct of arms-length business transactions is fashioned after English common law traditions. Ghana began implementing free-market economic reforms and deregulating state-owned enterprises (SOEs) through International Monetary Fund (IMF) and World Bank-led structural adjustment programs (SAPs) in the late 1980s after decades of inward-looking economic policies and mismanagement since the country's independence in 1957. Despite the absence of well-developed market-supporting institutions, the implementation of economic reforms and the deregulation of SOEs have nurtured an economy that is relatively open, making it possible for firms to obtain resources for their business activities (Mmieh & Owusu-Frimpong, 2009). However, these processes also created an unprecedented change in the business environment through increased competition both in the domestic market and from imports (Amoako-Gyampah & Acquaah, 2008). The major industries in the country include mining, logging, light manufacturing, aluminium smelting, food processing, cement, oil refining, and small commercial shipbuilding. The country has a vibrant stock market, but only 35 companies are listed on the Ghana Stock Exchange because most companies are SMMEs with a majority of them being family businesses. From a cultural perspective, Ghana is a collectivistic society that is characterised by strong interpersonal and social relationships. Thus interpersonal and social relationships are important in managing business activities; however, the formal institutions, which follow English common law traditions, govern how economic and business activities are conducted through arms-length transactions.

4.2. Data, sample and validity checks

The data were collected through a survey method that involved the administration of a structured questionnaire to top managers, chief executive officers (CEOs) and their deputies and the heads of the finance/accounting departments of FBs and NFBs operating in Ghana. The sample consisted of the 200 largest companies selected from the 2001 *Ghana Business Directory*. The 2001 *Ghana Business Directory* listed approximately 300 companies. The 200 companies were selected based on their size, which was measured by the number of employees. All thirty-five (35) companies listed on the Ghana Stock Exchange during the data collection period were included in the sample of 200 firms. The implementation and administration of the survey followed three steps. First, a letter was sent to the CEOs of all of the selected companies to inform them about the study. The letter explained the purpose of the study and requested their cooperation in participating in the study. To ensure a high response rate and the provision of reliable and accurate responses, the letter promised the CEOs that respondents and any information about their companies would remain strictly confidential. Another incentive the researcher used to increase the response rate was to promise the participants (companies) that they would be provided with an executive summary of the results of the study.

Second, the researcher personally visited the selected companies approximately two months after the initial letters were mailed, gave the questionnaires to the CEOs, and agreed on a date to collect the completed questionnaires. Separate questionnaires were prepared for the CEOs/Deputy CEOs and the heads of the accounting/finance divisions of each firm with titles such as chief financial officer, director of administration in charge of finance, and chief accountant. The CEOs/Deputy CEOs were asked to provide responses to questions concerning MCS, business strategy and the demographic characteristics of their firms, while the heads of the finance/accounting divisions were asked to provide information about their firm's performance. Third, several personal follow-up visits were made to the companies over a one month period to collect the completed questionnaires. Responses were received from 115 firms. One hundred and six (106) responses were useable, for a response rate of 53%. Of the 106 useable responses, there were 50 FBs and 56 NFBs. Table 1 provides the demographic characteristics of the firms in the study.

To check for potential response bias, the researcher ensured that all the respondents who completed the questionnaires were the top executives of the businesses. On average, the top executives who completed the questionnaires had worked for their companies for 12.64 years (13.28 years for FBs and 12 years for NFBs) and had held their respective managerial positions for 10.66 years (10.73 years for FBs and 10.59 years for NFBs). CMV problems were minimised by designing the survey questionnaires such that information on the independent variables and the dependent variable were collected from different respondents. Information on management control systems and business strategy were obtained from the CEOs and their deputies, while that on firm performance was collected from the heads of the accounting/finance divisions.

To establish the validity of the survey instruments used to operationalise the constructs, the content and construct validities were both examined. Content validity was assessed by reviewing the items for face validity and calculating the internal consistency of the variables (through the use of Cronbach's alpha coefficients). Construct validity was assessed using (1) validated measures of the constructs and adapted versions where possible and (2) factor analyses to examine convergent and discriminant validity. All items had high loadings (0.40 or greater) on their respective constructs, signifying desirable convergent validity. Moreover, there was a lack of significant cross-loadings in all constructs

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Table 1
Demographic characteristics of firms in the study.

Demographic characteristic	Overall		Family businesses		Non-family businesses	
	# of firms/frequency	Per cent	# of firms	Per cent	# of firms	Per cent
Business sector						
Manufacturing	88	83	42	84.0	46	82.1
Service	18	17	8	16.0	10	17.9
Total	106	100	50	100	56	100
Family versus nonfamily businesses						
Family businesses	50	47.2				
Nonfamily businesses	56	52.8				
Total	106	100				
Ownership structure						
Wholly locally owned	71	67.0	49	98.0	22	39.3
Joint venture	30	28.3	0	0.0	30	53.6
Wholly foreign-owned	5	4.7	1	2.0	4	7.1
Total	106	100	50	100	56	100
Firm size (number of employees)						
Less than 50	39	36.8	36	72.0	3	5.4
50–99	25	23.6	13	26.0	12	21.4
100–199	21	19.8	1	2.0	20	35.7
200–499	15	14.1	0	0.0	15	26.8
500 and over	6	5.7	0	0.0	6	10.7
Total	106	100	50	100		
Firm age (years)						
Less than 10	14	13.2	11	22.0	3	5.4
10–20	40	37.7	20	40.0	20	35.7
21–30	18	17.0	11	22.0	7	12.5
30 and over	34	32.1	8	16.0	26	46.4
Total	106	100	50	100	56	100
Public versus privately owned						
Public (listed on stock market)	14	13.2	0	0.0	14	25.0
Privately owned	92	86.8	50	100	42	75.0
Total	106	100	50	100	56	100

except business strategy, which indicated minimal cross-loadings, demonstrating reasonable discriminant validity. The exploratory factor analyses of the items that were used to operationalise MCS and business strategy are presented in Tables 2 and 3, respectively.

4.3. Measurement of variables

4.3.1. Firm performance

Firm performance ($\alpha = 0.91$) was measured with a subjective instrument using five measures: (i) productivity growth (GPROD); (ii) growth in sales and revenues (GREV); (iii) growth in net income/profits (GNI); (iv) return on assets (*ROA*); and (v) return on sales (*ROS*). Subjective performance measures were solicited because most of the firms in the sample were privately owned (including all of the FBs); hence objective performance information was difficult to obtain. The head of the accounting and finance divisions in all of the family and nonfamily businesses were asked to rate their businesses on the five measures of performance relative to their competitors over the past three years on a scale ranging from (1) "*much worse*" to (7) "*much better*". Firm performance was therefore constructed by averaging the ratings of the five measures to form a composite but global measure as follows:

$$\text{Firm performance} = \left[\frac{\text{GPROD} + \text{GREV} + \text{GNI} + \text{ROA} + \text{ROS}}{5}\right]$$

Subjective performance measures are commonly used in situations where objective data are either not available or difficult to obtain (e.g., Tan & Peng, 2003). Moreover, the convergent, discriminant, and construct validities of using perceptual performance measures as substitutes for objective measures were demonstrated by Wall et al. (2004). Soliciting performance information from the head of the accounting and finance division has the potential to minimise measurement errors and the potential problem of mono-method bias.

4.3.2. Management control systems

The definition of MCS used in this study is based on the levers of control framework (Simons, 1995, 2000) but focuses on diagnostic and interactive uses of performance measurement systems. The items used to operationalise the MCS variables (DCS, ICS, and *Dynamic Tension*) were derived from Simons' (1995, 2000), Henri's (2006) and Widener's (2007) concepts and questions. The respondents were asked to indicate the extent to which top management currently use performance measurement for various management control initiatives on a seven-point scale, ranging from (1) "*not at all*" to (7) "*a great extent*." An exploratory factor analysis of the MCS items provided two factors. Nine items regarding goal achievement, monitoring, the review of key performance variables, comparing outcomes to expectations, and feedback and tracking of progress towards goals loaded on factor 1. This variable was labelled DCS and operationalised using the average responses to the nine items ($\alpha = 0.89$). Seven items concerning the personal involvement of top and operating managers in the day-to-day activities of the firm such as: face-to-face discussions and debates on underlying data, assumptions and action plans, the provision of opportunities for experimentation and learning, continuously monitoring customer needs and market changes, etc. loaded on factor 2. This variable was labelled ICS and operationalised using the average responses to the seven items ($\alpha = 0.88$). The *Dynamic Tension* variable was then created by multiplying the mean centred variables of DCS and ICS (see Table 2 for an exploratory factor analysis of the MCS items).

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Table 2
Exploratory factor analysis of management control systems items.[a]

Scale and items	Factor 1	Factor 2
Diagnostic control systems (DCS)		
Identifying and analysing the firm's key performance indicators	**0.823**	0.122
Set goals for the company's annual profit plans	**0.711**	0.186
Require managers to prepare monthly or quarterly statements and report actual accomplishments and compare them with planned goals	**0.734**	0.177
Monitor employees' attitudes towards budgetary items	**0.865**	0.164
Monitor the company's market share regularly	**0.792**	0.262
Use feedback systems to track performance goals	**0.842**	0.158
Rarely review monthly or quarterly exception reports (*R*)	**0.798**	0.245
Rarely follow-up on exception reports with significant exceptions and initiate actions to get things back on track (*R*)	**0.677**	0.326
Use incentives as a way of motivating employees to achieve their goals	**0.684**	0.344
Interactive control systems (ICS)		
Continuously monitor customer needs and market changes to take advantage of emerging opportunities and mitigate unexpected threats	0.102	**0.757**
Debate underlying data, assumptions and action plans before setting the company's performance goals	0.141	**0.805**
Engage managers at all levels of the organisation to frequently and regularly focus their attention on budgets and key performance indicators	0.301	**0.683**
Continuously address information generated from annual profit plans, budgets, and other issues on a recurring basis at the highest level of the company	0.135	**0.820**
Frequently involve managers in face-to-face discussions of the information generated from annual profit plans, budgets, and other issues at all levels to address future strategic uncertainties	0.271	**0.699**
Use information generated from annual profit plans, budgets, and issues to guide the search for new opportunities and stimulate experimentation, and learning	0.111	**0.878**
Use information generated from annual profit plans, budgets, and other issues to create new action plans	0.264	**0.714**
Eigenvalue	5.128	4.035
Percentage of variance explained	34.671	26.224
Cumulative percentage of variance explained	34.005	60.895

[a] The method employed was principal component analysis with varimax rotation. Factor loadings greater than an absolute value of 0.40 are shown in bold font.

4.3.3. Business strategy

Business strategy was measured using sixteen (16) competitive methods, which have been used extensively to operationalise Porter's (1980) generic competitive strategies (e.g., Dess & Davis, 1984). The respondents were asked to assess the extent to which their businesses have emphasised and implemented each of the 16 competitive methods over the past three years on a seven-point scale ranging from (1) "*much less*" to (7) "*much more*." To ensure that the items measuring business strategy represented the underlying constructs, a factor analysis was conducted on the competitive methods with all of the items loading on two factors – differentiation and cost leadership strategies. The differentiation strategy ($\alpha = 0.86$) was measured using the average of the seven items that loaded highly on this factor: developing new products/service offerings; upgrading or refining existing products/services; providing products or services for high priced market segments; the improvement of existing customer service; innovation in marketing products/services; advertising and promoting products/services; and building brand and company identification. The cost leadership strategy ($\alpha = 0.83$) was operationalised using the average of the six items that loaded highly on this factor: offering a broad range of products/services; operating efficiency; offering competitive pricing for products/services; forecasting market growth in sales; control of operating and overhead costs; and innovation in the production process or service offerings. Three items cross-loaded highly on both differentiation and cost leadership – offering specialty products/services, effective control of distribution channels, and emphasising high quality standards or high quality services – and were thus excluded from the operationalisation of each of the business strategies (see Table 3).

Table 3
Exploratory factor analysis of competitive strategy items.[a]

Scale and items	Factor 1	Factor 2
Differentiation strategy		
Developing new products or services	**0.782**	0.112
Upgrading or refining existing products	**0.776**	0.261
Products or services for high priced market segments	**0.704**	0.237
Improvement of existing customer service	**0.680**	0.301
Innovation in marketing products and services	**0.609**	0.202
Advertising and promotion of products and services	**0.880**	0.045
Building brand and company identification	**0.822**	0.125
Offering specialty products and services[b]	**0.604**	**0.515**
Effective control of distribution channels[b]	**0.586**	**0.402**
Cost leadership strategy		
Offering a broad range of products or services	0.138	**0.733**
Operating efficiency	0.114	**0.879**
Offering competitive prices for products and services	0.222	**0.781**
Forecasting market growth in sales	0.213	**0.728**
Control of operating and overhead costs	0.124	**0.852**
Innovation in production process or service offerings	0.121	**0.843**
Emphasising high quality standards or high quality service[b]	**0.432**	**0.664**
Eigenvalue	4.813	3.527
Percentage of variance explained	35.352	24.272
Cumulative percentage of variance explained	35.352	59.624

[a] The method employed was principal component analysis with varimax rotation. Factor loadings greater than an absolute value of 0.40 are shown in bold font.

[b] All items that loaded on more than one factor were excluded from the operationalisation of the competitive strategy variables.

4.3.4. Family business

There is a broad agreement in the FB literature that the three characteristics of ownership, control and involvement in the business are important in operationally defining FBs (Anderson & Reeb, 2003; Chua, Chrisman, & Sharma, 1999; Gomez-Mejia et al., 2011). By family control, we mean the ownership of the business by a specific family for multiple generations, while family involvement focuses on family members' participation in the day-to-day operations, management and decision-making processes of the business. Thus, a family business in this study was defined as a firm that is owned and controlled by a specific family

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and where family members are involved in the firm's management and decision-making processes (Acquaah, 2011b; Shankar & Astrachan, 1996; Chua et al., 1999; Chrisman, Chua, & Litz, 2004). FBs and NFBs were therefore differentiated by asking the CEOs/deputies to provide responses to the following three questions: (1) Is the company a family-owned firm ("yes" or "no")? (2) Do family members control the business ("yes" or "no")? (3) Are family members involved in the business as directors, managers and/or employees ("yes" or "no")? All respondents (100%) who answered "yes" regarding whether the business is family-owned also responded "yes" to the other two questions – control and involvement. A family firm was, therefore, operationalised as a dummy variable coded 1 for "yes" responses to the above questions, while a nonfamily firm was coded 0 for "no" responses to all the three questions. This operationalisation was then used to separate the sample into the FBs and NFBs sub-samples.

4.3.5. Control variables

This study controlled for number of factors that might influence a firm's performance and the use of MCS. The control variables are firm age, firm size, market competition, and business sector (O'Connor et al., 2011; Speckbacher & Wentges, 2012; Zellweger, Kellermanns, Eddleston, & Memili, 2012; Zhang, Venus, & Wang, 2012). *Firm age* was measured as the number of years since the formation or incorporation of the firm. *Firm size* was measured as the logarithm of the number of employees. *Market competition* ($\alpha = 0.79$) was operationalised using a previously validated instrument that has been used in an economic environment that has experienced the deregulation and privatisation of SOEs (Mia & Clarke, 1999) because of Ghana's experience with SOE deregulation and privatisation. The respondents were asked to indicate the extent to which the following activities have occurred in their organisation's industry within the past three years: (a) an increase in the number of major competitors; (b) the use of package deals for customers; (c) the frequency of new product or service introductions; (d) the rate of change in prices; (e) an increase in the number of companies with access to the same marketing channels; and (f) the frequency of changes in government regulations affecting the industry. These activities were measured on a seven-point scale ranging from (1) "*very little*" to (7) "*very extensive*." *Industry sector* was operationalised using a dummy variable, coded 1 for manufacturing firms and 0 for service firms.

4.4. Statistical analysis

To test the hypotheses, a mediated regression analysis per the methodology suggested by Baron and Kenny (1986) is used for the overall sample and for the FB and NFB subgroups individually. According to Baron and Kenny (1986, p. 1177), "to test for mediation, one should estimate the following three regression equations: first, regressing the mediator on the independent variable; second, regressing the dependent variable on the independent variable; and third, regressing the dependent variable on both the independent variable and on the mediator". Baron and Kenny (1986) further state that "to establish mediation, the following conditions must hold: First, the independent variable must affect the mediator in the first equation; second, the independent variable must be shown to affect the dependent variable in the second equation; and third, the mediator must affect the dependent variable in the third equation" (p. 1177). They further assert that mediation is strongest when there is no direct effect but an indirect effect in the third equation.

The study, therefore, estimated (1) the effect of the control and MCS variables on the moderator, business strategy; (2) the effect of the control and MCS variables on performance; and (3) the effect of the control, MCS, and business strategy variables on performance. The beta coefficients from the mediated regression analysis for the FB and NFB sub-samples were then compared to test Hypothesis 4. However, because of the strong case against using Baron and Kenny's (1986) methodology and Sobel's *z*-test to test for the presence of indirect or mediation effects (Preacher & Hayes, 2004, 2008; Zhao, Lynch, & Chen, 2010), the Preacher and Hayes (2008) bootstrap method was also used to test Hypothesis 4. It should be noted that using structural equation modelling (SEM) for the analyses was not feasible because of the relatively small sample sizes of the FB and NFB sub-samples (Bisbe & Otley, 2004). The validity of the regression model was examined using several tests. The assumptions of equality of variance, independence of the error term, and the normality of the residuals were all satisfied (Gujarati, 2003).

5. Results

Table 4 provides the descriptive statistics of and correlations among the variables in the study. The pair-wise correlations show significant and relatively high correlations between family business and firm size and between the MCS and competitive strategy variables (e.g., the correlation between the cost leadership strategy and DCS is 0.46, while the correlation between the differentiation strategy and ICS is 0.35). However, none of the VIFs in the regression models were greater than 3, which is much smaller than the critical threshold of 10, indicating that multi-collinearity is not a concern in any of the models (Neter, Kutner, Nachtsheim, & Wasserman, 1996). It should also be noted that there is an inverse correlation between the differentiation strategy and DCS. This relationship may be because DCS focus on the achievement of predetermined goals and discourage opportunity-seeking behaviours and experimentation, and they are therefore a controlling form of MCS. Differentiation, however, focuses on uniqueness and therefore encourages innovativeness through marketing/advertising, product and service offerings, etc.; this is inconsistent with the emphasis on predetermined goal achievement advocated by DCS.

Table 5 presents the results of the regression analysis for the overall sample to examine Hypotheses 1a, 2a and 3a (H1a, H2a and H3a). Models 1 and 3 examine the effects of the control variables on business strategy (cost leadership and differentiation). The results show that firm size is positively related to the cost leadership strategy, while market competition is positively related to the differentiation strategy. Models 2 and 4 present the effects of MCS (DCS, ICS and *Dynamic Tension*) on business strategy (cost leadership and differentiation) and were used to test the hypotheses. The results indicate that while DCS ($\beta = 0.73$; $p < 0.001$) and *Dynamic Tension* ($\beta = 0.15$; $p < 0.05$) are positively related to the cost leadership strategy, ICS are not related to the cost leadership strategy. Conversely, while ICS ($\beta = 0.63$; $p < 0.001$) are positively related to the differentiation strategy, DCS ($\beta = -0.11$; $p > 0.10$) and *Dynamic Tension* ($\beta = 0.11$; $p > 0.10$) are not related to the differentiation strategy. Thus H1a, H2a and H3a were all partially supported. Model 5 determines the effect of the control variables on performance. The results show that firm size and market competition are positively related to performance. Model 6, which examines the effects of the MCS variables on performance, indicates that DCS ($\beta = 0.14$; $p < 0.10$), ICS ($\beta = 0.23$; $p < 0.01$) and *Dynamic Tension* ($\beta = 0.15$; $p < 0.10$) are all positively related to performance. In Model 7, the business strategy variables were added to Model 6 to examine the effects of the business strategy variable on performance in the presence of the MCS variables for the full sample. The results from Model 7 show that all of the MCS variables are no longer significant, while the cost leadership strategy ($\beta = 0.32$; $p < 0.01$) and the differentiation

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Table 4
Descriptive statistics and correlation matrix[a] ($N = 106$).

Variables	1	2	3	4	5	6	7	8	9	10
Correlations										
1. Firm performance	**0.91**									
2. Firm age (years)	0.09									
3. Firm size (log number of employees)	0.25**	0.48***								
4. Industry sector (manufacturing versus service)	−0.18+	−0.12	−0.24**							
5. Family business	−0.08	0.33***	−0.64***	0.03						
6. Market competition	0.37***	−0.01	−0.01	−0.08	0.06	**0.79**				
7. Differentiation strategy	0.39***	−0.01	0.11	−0.05	−0.07	0.18+	**0.86**			
8. Cost leadership strategy	0.30**	0.08	0.23**	−0.17+	−0.13	0.08	0.01	**0.83**		
9. Interactive control systems	0.22*	0.01	0.06	0.07	−0.03	0.04	0.35***	−0.09	**0.88**	
10. Diagnostic control systems	0.15	0.11	0.19*	−0.09	−0.13	0.12	−0.20*	0.46***	−0.17+	**0.89**
Descriptive statistics										
Mean	4.80	25.43	1.91	0.83	0.47	4.79	4.66	4.88	4.56	4.61
Standard deviation	1.13	15.77	0.53	0.38	0.50	1.25	1.19	1.16	1.09	1.23
Minimum	2.00	7.00	1.00	0.00	0.00	2.14	2.00	1.86	1.85	1.77
Maximum	7.00	87.00	3.3	1.00	1.00	6.86	6.75	7.00	6.40	6.89

[a] Full sample. Bolded values in the diagonals are reliability coefficients (Cronbach's alpha coefficients).
+ Significance $p < 0.10$.
* Significance $p < 0.05$.
** Significance $p < 0.01$.
*** Significance $p < 0.001$.

Table 5
MCS, business strategy and firm performance for overall firms ($N = 106$).[a]

Variables	Cost leadership strategy		Differentiation strategy		Firm performance		
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Firm age	−0.05	0.03	−0.07	−0.09	−0.04	−0.07	−0.04
Firm size	0.27+	0.10	0.14	0.10	0.35**	0.34*	0.29*
Business sector	−0.11	−0.09	−0.02	−0.09	−0.08	−0.10	−0.05
Market competition	0.08	−0.01	0.18+	0.15*	0.35***	0.32***	0.28***
Family business	0.05	0.04	0.01	−0.02	0.15	0.16+	0.15+
Diagnostic control system (DCS)		0.73***		−0.11		0.14+	−0.08
Interactive control system (ICS)		0.03		0.63***		0.23**	0.06
Dynamic Tension (DCS × ICS)		0.15*		0.11		−0.15+	−0.12
Cost leadership							0.32**
Differentiation							0.25*
Adjusted R^2	0.030	0.60	0.02	0.45	0.18	0.26	0.32
F	1.66	19.08***	1.29	11.56***	5.54***	4.66***	5.64***

[a] Standardised coefficients.
+ Significance $p < 0.10$.
* Significance $p < 0.05$.
** Significance $p < 0.01$.
*** Significance $p < 0.001$.

strategy ($\beta = 0.25$; $p < 0.05$) were positively and significantly related to performance. The results imply that business strategy completely (or fully) mediates the MCS-performance relationships such that: (a) the cost leadership strategy positively mediates the DCS-performance relationship; (b) the cost leadership strategy positively mediates the *Dynamic Tension*-performance relationship; and (c) the differentiation strategy negatively mediates the DCS-performance relationship. The results are presented in Fig. 2.

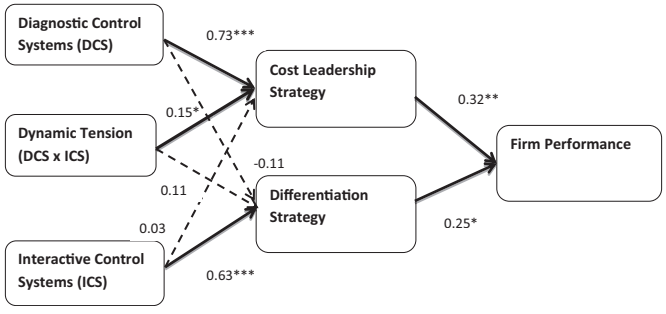

Fig. 2. Significant results from the model for all firms.

Table 6 presents the subgroup analyses for FBs and NFBs that were estimated to test H1b, H2b, H3b, and H4. Models 8 and 10 investigate the influence of the control variables on business strategy. The results indicate that firm size is only significantly related to cost leadership for NFBs, while market competition is only related to differentiation for NFBs. Model 9 examines the effect of MCS on the cost leadership strategy for FBs and NFBs. The results show that DCS are significantly related to the cost leadership strategy for both FBs ($\beta = 0.48$; $p < 0.001$) and NFBs ($\beta = 0.70$; $p < 0.001$), ICS are not related to the cost leadership strategy for both FBs and NFBs, while *Dynamic Tension* is positively related to the cost leadership strategy for FBs ($\beta = 0.26$; $p < 0.05$) but not for NFBs ($\beta = -0.01$; $p > 0.10$). A t-test comparing the two betas for MCS for FBs and NFBs indicates that DCS have a greater influence on the cost leadership strategy for NFBs than FBs ($t = -1.81$; $p < 0.01$), while *Dynamic Tension* has a greater influence on the cost leadership strategy for FBs than NFBs ($t = 2.22$; $p < 0.001$). Model 11 further assesses the effects of MCS on the differentiation strategy for FBs and NFBs. The results indicate that DCS are negatively related to the differentiation strategy for both FBs and NFBs, but the results are not significant. Conversely, both ICS ($\beta = 0.68$; $p < 0.001$) and *Dynamic Tension* ($\beta = 0.15$; $p < 0.10$)

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Table 6
MCS, business strategy and firm performance for family and nonfamily businesses.[a]

Variables	Cost leadership strategy					Differentiation strategy					Firm performance			
	Model 8		Model 9			Model 10		Model 11			Model 12		Model 13	
	Family (FBs)	Nonfamily (NFBs)	FBs	NFBs	*t*-Test[b]	FBs	NFBs	FBs	NFBs	*t*-Test	FBs	NFBs	FBs	NFBs
Firm age	−0.19	0.02	−0.01	−0.09		0.06	−0.11	−0.04	−0.08		−0.15	−0.11	−0.15	−0.05
Firm size	−0.26	0.38**	−0.04	0.13		0.06	0.15	0.03	0.15		−0.07	0.41**	−0.07	0.32*
Business sector	−0.25	−0.13	−0.13	−0.09		0.04	−0.13	0.04	−0.23*		−0.28*	−0.01	−0.25^{+}	0.10
Market competition	0.12	−0.01	0.09	−0.04		0.61***	−0.12	0.35***	0.04		0.25^{+}	0.37**	0.17	0.37**
Diagnostic control system			0.48***	0.70***	−1.81**			−0.09	−0.19	0.82	0.15	0.08	−0.04	−0.08
Interactive control system			−0.07	0.09	−1.28			0.68***	0.43**	1.74**	0.37**	0.18	0.21	−0.02
Dynamic Tension			0.26*	−0.01	2.22***			0.15^{+}	−0.13	2.13***	0.12	−0.31*	0.11	−0.27*
Cost leadership strategy													0.23*	0.32*
Differentiation strategy													0.28*	0.36**
Adjusted R^2	0.054	0.12	0.65	0.48		0.31	0.00	0.67	0.35		0.27	0.25	0.37	0.38
Change in adjusted R^2			0.58***	0.36***				0.35***	0.35***				0.10**	0.14***
F	1.70	2.95*	13.88***	8.35***		6.49***	0.63	17.27***	5.90***		3.31**	3.58**	2.79*	4.77***

[a] Standardised coefficients. Family businesses: $N = 50$; non-family businesses: $N = 56$.
[b] The *t*-test is a one-tailed test.
$^{+}$ Significance: $p < 0.10$.
* Significance: $p < 0.05$.
** Significance: $p < 0.01$.
*** Significance: $p < 0.001$.

were significantly and positively related to differentiation for FBs, but only ICS were significantly positively related to differentiation for NFBs ($\beta = 0.43$; $p < 0.01$). A t-test comparing the beta coefficients suggest that there was no significant difference in the impacts of DCS on differentiation for FBs and NFBs ($t = 0.82$, $p > 0.10$); however, the effects of both ICS ($t = 1.74$; $p < 0.01$) and *Dynamic Tension* ($t = 2.13$; $p < 0.001$) on differentiation are greater for FBs than NFBs. Regarding the results for the impact of MCS on business strategy for FBs and NFBs, the findings indicate that both H1a and H2b were partially corroborated, while H3b was supported. This is because (a) the impact of DCS on business strategy is only greater for NFBs than FBs for the cost leadership strategy; (b) the effect of ICS on business strategy is only greater for FBs than NFBs for the differentiation strategy; and (c) the effects of *Dynamic Tension* on both the cost leadership and differentiation strategies are greater for FBs than NFBs. The results are graphically in Fig. 3 for FBs and Fig. 4 for NFBs.

To test H4, the results from Models 9, 11, and 13 in Table 6 for the FB and NFB subgroups and the Preacher and Hayes (2008) bootstrap procedure were used to examine the mediating (or indirect) effects of MCS on performance through the two business strategies of cost leadership and differentiation and compare the results for FBs and NFBs. From Models 9, 11, and 13 in Table 6, the indirect effects of MCS on performance were calculated by multiplying the betas of the MCS variables on business strategy by the effects of business strategy on performance. For example, to compute the moderating or indirect effects of MCS (DCS, ICS and *Dynamic Tension*) on performance through the cost leadership strategy for FBs: (a) the beta representing the effect of DCS on the cost leadership strategy was multiplied by the beta of the cost leadership strategy's effect on performance (i.e., $0.48 \times 0.23 = 0.11$); (b) the beta representing the effect of ICS on the cost leadership strategy was multiplied by the beta of the cost leadership strategy's effect on performance (i.e., $0.15 \times 0.23 = 0.04$); and (c) the beta representing the effect of *Dynamic Tension* on the cost leadership strategy was multiplied by the beta representing the cost leadership strategy's effect on performance (i.e., $0.26 \times 0.23 = 0.06$). Similar computations were made for the mediating or indirect effects of MCS on performance through the differentiation strategy for FBs and for the mediating effects of MCS on performance through the cost leadership and differentiation strategies for NFBs. It should be noted that the *Dynamic Tension* variable is an interaction between DCS and ICS, but because *Dynamic tension* affects the cost leadership and differentiation strategies for FBs, it could be argued that ICS moderates the effects of DCS on the cost leadership strategy, while DCS moderates the effect of ICS on the differentiation strategy. However, this is not the case for NFBs, as *Dynamic Tension* does not affect the business strategy variables. Because *Dynamic Tension* does not affect performance in the FB models, but does affect performance in the NFB models (models 12 and 13), it could be argued that neither FBs nor NFBs experience a mediated moderation relationship (Baron & Kenny, 1986). Using the absolute sizes of the indirect effects, the results indicated that the indirect effect of DCS on performance through the cost leadership strategy was greater for NFBs than FBs.

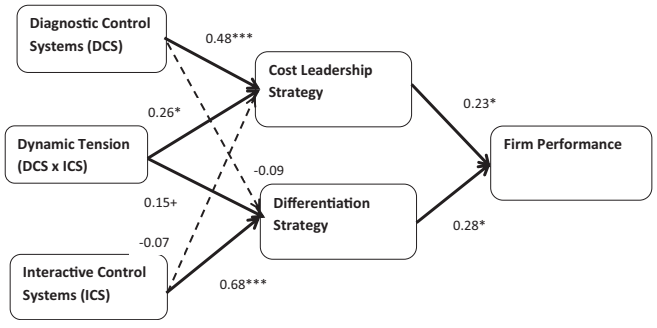

Fig. 3. Significant results from the model for family businesses.

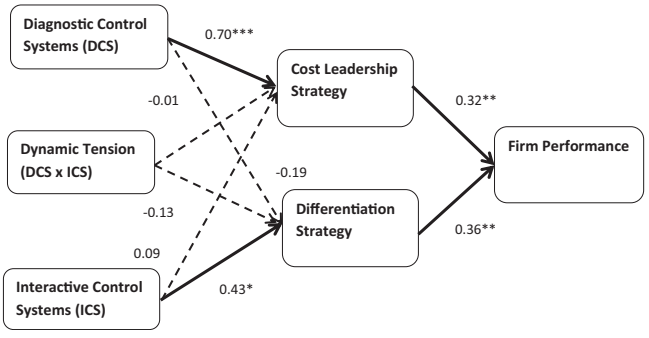

Fig. 4. Significant results from the model for nonfamily firms.

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Table 7
Indirect and total effects of MCS on performance for family and nonfamily businesses.[a]

Impact of	Effect									
	Direct	Direct from bootstrap[b]	Cost leadership strategy				Differentiation strategy			
			Regression model		Bootstrapping procedure		Regression model		Bootstrapping procedure	
			Indirect[c]	Total	Indirect[d]	Total	Indirect	Total	Indirect	Total
Diagnostic control systems (DCS) on performance										
Family businesses	−0.04	0.01	0.11*	0.07	0.11	0.11	−0.03	−0.06	−0.07	−0.06
	(−0.15)	(0.03)	(1.97)		(0.56)		(−0.89)		(1.24)	
Nonfamily businesses	−0.08	−0.22	0.22*	0.15	0.24+	0.02	−0.07	−0.15	−0.12+	−0.34
	(−0.40)	(−1.15)	(2.00)		(1.71)		(−1.12)		(1.75)	
Interactive control system (ICS) on performance										
Family businesses	0.21	0.24	−0.02	0.19	0.03	0.27	0.19*	0.40	0.26**	0.51
	(1.24)	(1.25)	(−0.86)		(−0.76)		(2.08)		(2.47)	
Nonfamily businesses	−0.02	−0.11	0.03	−0.01	−0.01	−0.13	0.16*	0.13	0.16*	0.05
	(−0.16)	(−0.79)	(0.75)		(0.43)		(1.98)		(1.95)	
Dynamic Tension (DCS × ICS on performance										
Family businesses	0.11	0.09	0.06+	0.17	0.04	0.13	0.04	0.16	0.06	0.15
	(0.84)	(0.70)	(1.68)		(0.81)		(1.35)		(1.12)	
Nonfamily businesses	−0.27*	−0.30*	−0.00	−0.28	−0.09	−0.39	−0.05	−0.32	−0.08	−0.37
	(−1.95)	(−2.43)	(−0.08)		(1.45)		(−0.86)		(−0.87)	

[a] Standardised coefficients.
[b] Direct effects of MCS on Performance using Preacher and Hayes' (2008) bootstrapping procedure. The results are from using one MCS variable (e.g., DCS, ICS or *Dynamic Tension*) at a time compared to including all of them in the model simultaneously, as was done in the regression model.
[c] Values in parentheses for the Regression Models are Sobel test statistics.
[d] Values in parentheses for the Bootstrapping Procedures are *Z*-scores.
+ Significance tests are two-tailed tests: $p < 0.10$.
* Significance tests are two-tailed tests: $p < 0.05$.
** Significance tests are two-tailed tests: $p < 0.01$.

While the mediating effects of DCS on performance through the differentiation strategy were greater for FBs than NFBs, the effects are both negative. Regarding the mediating effects of both ICS and *Dynamic Tension* on performance, it can be observed that they are larger for FBs than NFB except for the indirect effect of ICS on performance through cost leadership. The indirect effects of MCS on performance through business strategy obtained using the bootstrap procedure were generally consistent with the results described above, except for the sizes of the effects. Thus, H4a was partially supported. However, H4b and H4c were supported because the indirect effects of both ICS and *Dynamic Tension* on performance through business strategy were greater for FBs than NFBs.

The overall effects of MCS on performance were further computed by summing the direct and indirect effects of MCS on performance for the FBs and NFBs. For example, to compute the overall effect of DCS on performance for FBs from the regression models, the direct effect of DCS on performance (−0.04) was added to the indirect effects through (a) the cost leadership strategy (0.11) and (b) the differentiation strategy (−0.03). Thus, the overall effect for FBs through the cost leadership strategy is 0.07 and that through differentiation is −0.06. Table 7 shows the direct, indirect (mediating) and total effects of MCS on performance through the cost leadership and differentiation strategies for FBs and NFBs under the two methodologies. The results indicate that apart from the overall effect of DCS on performance through the cost leadership strategy, which was greater for NFBs than NFBs, all of the other overall effects of MCS on performance were greater for FBs than NFBs in the regression models. However, when we examine the results from the bootstrap procedure, all of the overall effects of MCS on performance were greater for FBs than NFBs.

6. Discussion

This study examined and compared the relationships among management control systems (MCS), business strategy and firm performance in family and non-family businesses. Specifically, it hypothesised that DCS, ICS, and the *Dynamic Tension* created by combining DCS and ICS (i.e., DCS × ICS) will influence business strategy; however, while the effect of DCS on business strategy will be stronger for NFBs than FBs, the effects of ICS and *Dynamic Tension* will be stronger for FBs than NFBs. It was also hypothesised that not only would business strategy mediate the effect of MCS on performance, but the mediating impact of MCS on performance would also be different for FBs and NFBs. The hypotheses were tested using survey data collected from 50 FBs and 56 NFBs in Ghana, a transition economy in sub-Saharan Africa.

Several notable findings were obtained from the study. The findings from the overall sample show that while DCS influence the implementation of the cost leadership strategy for both FBs and NFBs, they do not influence the execution of the differentiation strategy. Furthermore, the implementation of the cost leadership strategy fully mediates the relationship between DCS and performance; however, ICS the only support the implementation of the differentiation strategy; the differentiation strategy fully mediates the ICS-performance relationship. The *Dynamic Tension* created by the simultaneous use of DCS and ICS supports the cost leadership strategy but not the differentiation strategy. The cost leadership strategy also fully mediates the *Dynamic Tension*-performance relationship. These findings suggest that DCS and *Dynamic Tension* should be used to support the implementation of a cost leadership strategy and ICS should also be used to support a differentiation strategy if firms, in general, are to benefit from their use. These findings complement the work of Henri (2006), who found that *Dynamic Tension* could be used to create and maintain organisational capabilities. The subgroup analyses (considering the FBs and NFBs separately) indicate that MCS have different effects on the implementation of business strategy and performance for FBs and NFBs. The findings show that FBs benefit from using DCS and *Dynamic Tension* to implement the cost leadership strategy, and ICS and *Dynamic Tension* to implement the

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differentiation strategy; however, NFBs only benefit from DCS when these systems are used to support the implementation of the cost leadership strategy and only benefit from using ICS to implement the differentiation strategy (see Figs. 3 and 4). These findings clearly indicate that the role of MCS is to support the implementation of business strategies, and it is imperative for managers in both FBs and NFBs to match the appropriate control system to a given business strategy to obtain the maximum benefit from its use, thus corroborating the notion that MCS must conform to business strategy (Chenhall, 2003; Kober et al., 2007).

The findings further indicate that the influence of MCS on business strategy is contingent on whether the firm is a FB or NFB. While ICS had a greater influence on the differentiation strategy *r* for FBs than NFBs, that of DCS was stronger for NFBs than NFBs. Moreover, the *Dynamic Tension* created by the joint use of DCS and ICS enables FBs to implement both the cost leadership and differentiation strategies better than NFBs. The findings may imply that because FBs are usually smaller and younger than NFBs in Ghana (see Table 1 for the size and age distributions of FBs and NFBs), the maternalistic relationships that are developed with employees in FBs that focus on nurturing, cultivating a trusting workplace environment, emphasising long-term employment relationships and the strong desire not only to develop customer relationships but also to meet their needs, enable them to use ICS to implement the differentiation strategy by allowing them to concentrate on niche markets and offer quality products and exceptional customer service. Moreover, FBs also rely on their unique characteristics to use *Dynamic Tension* to support the implementation of both the cost leadership and differentiation strategies. The combination of FBs' unique characteristics and the use of both ICS and *Dynamic Tension* creates a flexible environment for employees to be creative and innovative in not only what they produce but also how they market their products and services. Conversely, diagnostic controls may be the forte of NFBs, and therefore, NFBs may prefer formalised mechanisms, highly structured communications channels, and tight control of operations to implement their business strategies (Henri, 2006).

Furthermore, the NFBs in the sample are on average larger and older than the FBs (e.g., 98% of FBs have fewer than 100 employees compared to 26.8% of NFBs, see Table 1); therefore, they have the opportunity to benefit from economies of scale by using a type of MCS that focuses more on efficiency (DCS). This leads to NFBs' greater on DCS, as they implement efficiency-based strategies. These findings are consistent with Henri (2006), who finds that both ICS and *Dynamic Tension* positively influenced the development of organisational capabilities for firms with flexible organisational cultures. Moreover, Mundy (2010) finds that ICS play a significant role in achieving and sustaining a balance between the controlling and enabling forces of MCS. An interesting observation from the findings is that both FBs and NFBs use DCS in conjunction with ICS but emphasise different performance measurement systems (PMS). This is consistent with Marginson's (2002) assertion that firms may use some aspects of their PMS interactively (ICS) to support their strategic initiative, while using other aspects diagnostically (DCS).

The findings further indicate that the influence of MCS on performance appears to be indirect and mediated by the implementation of business strategy for both FBs and NFBs. The indirect effect of MCS on performance is consistent with the findings of Henri (2006) and Widener (2007), who found that MCS influence performance through organisational capabilities and behavioural responses (management attention and organisational learning), respectively, but contrasts the findings of Bisbe and Otley (2004), who did not find an indirect effect of MCS (focusing on ICS) on performance mediated by product innovation. The difference between the findings obtained in the current study and those of Bisbe and Otley (2004) may be due to the meditating variables employed (product innovation as opposed to business strategy). For FBs, the findings show that MCS influence the implementation of both the cost leadership and differentiation strategies, which in turn influence performance. However, for NFBs, DCS' influence on performance only goes through the cost leadership strategy, while ICS' influence on performance is only through the differentiation strategy. Although FBs and NFBs do not obtain performance benefits from the influence of DCS on the differentiation strategy, both the indirect and overall impacts of MCS on performance seem to benefit FBs to a greater extent than NFBs. This can be observed in Table 7, where the indirect and overall effects of DCS mediated by differentiation, and those of ICS and *Dynamic Tension*, through both cost leadership and differentiation, favour FBs. These findings may be due to the ability of FBs to leverage the idiosyncratic combination of the "familiness" characteristics and their resource and capability endowments by using MCS to implement their chosen business strategy. These differences may be considered one of the major reasons determining the ability of FBs to develop competitive advantages over NFBs (e.g., Arregle et al., 2007; Chrisman, Chua, & Kellermanns, 2009; Sirmon & Hitt, 2003).

The results for the control variables also show that firm size, market competition, and business sector are important in influencing the implementation of business strategy and the performance of FBs and NFBs. Larger firms were more likely to use the cost leadership strategy and experience higher performance, and these larger firms were NFBs, not FBs. Moreover, firms that perceived their business environments to be more competitive were more likely to use the differentiation strategy, and these firms were FBs, not NFBs. Furthermore, for NFBs, service firms were less likely to pursue a differentiation strategy, and these firms also tended to underperform manufacturing firms.

7. Conclusion

Prior studies have examined the relationships among MCS, firm-specific factors (such as innovation, strategy, organisational capabilities, organisational learning, market orientation, managerial behavioural responses, etc.) and firm performance (e.g., Bisbe & Otley, 2004; Henri, 2006; Widener, 2007), but none have done so for FBs in transition economies in general and sub-Saharan Africa in particular. This study sought to investigate and compare the relationship among MCS, business strategy, and performance in FBs and NFBs in a sub-Saharan African transition economy. The conclusions drawn from this study are as follows. First, the study reveals that one of the functions of MCS is to support the implementation of business strategies (Bruining et al., 2004; Marginson, 2002; Kober et al., 2007; Merchant & Otley, 2007; Simons, 2000), even in economies that are experiencing economic reforms and deregulation and lack well-developed market-supporting institutions. It is, therefore, imperative for the managers of both FBs and NFBs in transition economies to match the appropriate MCS to a given business strategy to obtain the maximum benefit from its use. Second, while both FBs and NFBs benefit from the use of DCS to implement the cost leadership strategy, the benefits are greater for NFBs than for FBs. Third, both FBs and NFBs benefit from the use of ICS in implementing the differentiation strategy, but FBs benefit more than NFBs. Fourth, the simultaneous use of both DCS and ICS to create *Dynamic Tension* is more beneficial for FBs for both the cost leadership and differentiation strategies than for NFBs. Finally, MCS influence performance indirectly through business strategy; however, the indirect effects of MCS (DCS, ICS, and *Dynamic Tension*) on performance mediated by business strategy are stronger for FBs than for NFBs.

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The findings have several implications for the development of the theory and management practice in FBs. From a theoretical perspective, the findings of this study contribute to the literature on how firm-specific factors (e.g., resources and capabilities, business strategies, international strategies, social capital, firm image, etc.) affect outcomes in FBs (e.g., Abdellatif, Amann, & Jaussaud, 2012; Habbershon & Williams, 1999; Miller et al., 2009; Sirmon & Hitt, 2003; Zellweger et al., 2012) by including the role of formal management control systems as antecedents in the process. Thus, this study provides the first empirical investigation of the role of MCS in supporting the strategic activities of FBs to create competitive advantage and begins the conversation on the importance of MCS in FBs. From a managerial practice perspective, the findings reveal that it is important for FBs in transition economies to be aware of the types of MCS that enable them to create value when implementing a business strategy (cost leadership and differentiation). DCS seem to be more beneficial when a FB is implementing an efficiency-based (cost leadership) strategy, while ICS is more valuable when a FB is implementing a market-based or differentiation-based strategy. However, the real value MCS have for FBs is in the balanced use of DCS and ICS to implement both the cost leadership strategy and the differentiation strategy. ICS provide a lever to modify, alter and support an intended strategy to ensure that the firm's is able to adapt as competitive markets change (Simons, 2000; Widener, 2007).

7.1. Limitations

This study has several limitations. First, subjective performance measures were used instead of objective performance measures. Objective performance measures would have been preferable, but most of the firms in the sample were privately owned (including all of the FBs); hence, objective performance information was difficult to obtain. However, several studies have shown that objective and subjective performance measures are highly correlated. Furthermore, Wall et al. (2004) confirmed the validity of subjective performance measures as substitutes for objective performance measures. Future research should use firms that lend themselves to the use of objectives performance measures to corroborate the findings from the use of subjective measures. Second, only formal control systems were examined in this study. The use of informal control systems such as those grounded in organisational culture (shared norms, values and beliefs), social ties, socialisation processes and the reliance on self-regulation (Langfield-Smith, 2008; Malmi & Brown, 2008; Merchant & Van der Stede, 2007), which are more characteristic of FBs in transition economies, could have resulted in different conclusions. The implication here is that future studies should incorporate both formal and informal MCS and examine the overall influence of MCS on strategy and performance (Malmi & Brown, 2008). Future studies could also investigate how other firm-specific factors such as size, age, and organisational capabilities, in addition to industry-related factors such as the level of competition and business sector (types of industries), would mediate the MCS-performance relationship in FBs.

Third, the data used in the study are cross-sectional in nature, which precludes drawing conclusions about cause and effect relationships. A study that explicitly employs longitudinal data would provide more robust conclusions regarding the mediating effects of business strategy on the relationship between MCS and performance in both FBs and NFBs. Future studies are therefore encouraged to use longitudinal designs to examine the MCS-strategy–performance relationship. Fourth, from an analytical perspective, the use of SEM, in which the measurement of latent variables and structural analysis were conducted simultaneously, would have enhanced the quality of the mediation models. However, this was precluded by small sample size. Future studies should attempt to increase the sample size so that SEM could be used not only to examine the relationships proposed in the model but also to improve the stability and generalisability of the findings (Bisbe & Otley, 2004). Finally, the study was limited to FBs and NFBs in a relatively small developing economy in sub-Saharan Africa, Ghana, which obviously may affect its generalisability to other large transition economies in Asia, Latin America and Central and Eastern Europe. Although, the cultural, institutional and economic environment in Ghana may be similar to those in other low-income sub-Saharan African countries, future studies using data from other sub-Saharan African economies or emerging economies in general may help to clarify the differences between family and non-family businesses in transition economies in the relationship among MCS, business strategy and performance.

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